Java StringBuffer Class

Java StringBuffer class is used to create mutable (modifiable) String objects. The StringBuffer class in Java is the same as String class except it is mutable i.e. it can be changed.

> Note: Java StringBuffer class is thread-safe i.e. multiple threads cannot access it simultaneously. So it is safe and will result in an order.

Important Constructors of StringBuffer Class

Constructor	Description
StringBuffer()	It creates an empty String buffer with the initial capacity of 16.
StringBuffer(String str)	It creates a String buffer with the specified string..
StringBuffer(int capacity)	It creates an empty String buffer with the specified capacity as length.

Important methods of StringBuffer class

Modifier and Type	Method	Description
public synchronized StringBuffer	append(String s)	It is used to append the specified string with this string. The append() method is overloaded like append(char), append(boolean), append(int), append(float), append(double) etc.
public synchronized StringBuffer	insert(int offset, String s)	It is used to insert the specified string with this string at the specified position. The insert() method is overloaded like insert(int, char), insert(int, boolean), insert(int, int), insert(int, float), insert(int, double) etc
public synchronized StringBuffer	replace(int startIndex, int endIndex, String str)	It is used startIndex a

public synchronized StringBuffer	delete(int startIndex, int endIndex)	It is used to delete the string from specified startIndex and endIndex.
public synchronized StringBuffer	reverse()	is used to reverse the string.
public int	capacity()	It is used to return the current capacity.
public void	ensureCapacity(int minimumCapacity)	It is used to ensure the capacity at least equal to the given minimum.
public char	charAt(int index)	It is used to return the character at the specified position.
public int	length()	It is used to return the length of the string i.e. total number of characters.
public String	substring(int beginIndex)	It is used to return the substring from the specified beginIndex.
public String	substring(int beginIndex, int endIndex)	It is used to return the substring from the specified beginIndex and endIndex.

What is a mutable String?

A String that can be modified or changed is known as mutable String. StringBuffer and StringBuilder classes are used for creating mutable strings.

1) StringBuffer Class append() Method

The append() method concatenates the given argument with this String.

StringBufferExample.java

```
class StringBufferExample{
public static void main(String args[]){
StringBuffer sb=new StringBuffer("Hello ");
sb.append("Java");//now original string is changed
System.out.println(sb);//prints Hello Java
}
}
```

Output:

```
Hello Java
```

2) StringBuffer insert() Method

The insert() method inserts the given String with this string at the given position.

StringBufferExample2.java

```
class StringBufferExample2{
public static void main(String args[]){
StringBuffer sb=new StringBuffer("Hello ");
sb.insert(1,"Java");//now original string is changed
System.out.println(sb);//prints HJavaello
}
}
```

Output:

```
HJavaello
```

3) StringBuffer replace() Method

The replace() method replaces the given String from the specified beginIndex and endIndex.

StringBufferExample3.java

```
class StringBufferExample3{
public static void main(String args[]){
StringBuffer sb=new StringBuffer("Hello");
sb.replace(1,3,"Java");
System.out.println(sb);//prints HJavalo
}
}
```

Output:

```
HJavalo
```

4) StringBuffer delete() Method

The delete() method of the StringBuffer class deletes the String from the specified beginIndex to endIndex.

StringBufferExample4.java

```
class StringBufferExample4{
public static void main(String args[]){
StringBuffer sb=new StringBuffer("Hello");
sb.delete(1,3);
System.out.println(sb);//prints Hlo
}
}
```

Output:

```
Hlo
```

5) StringBuffer reverse() Method

The reverse() method of the StringBuilder class reverses the current String.

StringBufferExample5.java

```
class StringBufferExample5{
public static void main(String args[]){
StringBuffer sb=new StringBuffer("Hello");
sb.reverse();
System.out.println(sb);//prints olleH
}
}
```

Output:

```
olleH
```

6) StringBuffer capacity() Method

The capacity() method of the StringBuffer class returns the current capacity of the buffer. The default capacity of the buffer is 16. If the number of character increases from its current capacity, it increases the capacity by (oldcapacity*2)+2. For example if your current capacity is 16, it will be (16*2)+2=34.

StringBufferExample6.java

```
class StringBufferExample6{
public static void main(String args[]){
```

```
StringBuffer sb=new StringBuffer();
System.out.println(sb.capacity());//default 16
sb.append("Hello");
System.out.println(sb.capacity());//now 16
sb.append("java is my favourite language");
System.out.println(sb.capacity());//now (16*2)+2=34 i.e (oldcapacity*2)+2
}
}
```

Output:

```
16
16
34
```

7) StringBuffer ensureCapacity() method

The ensureCapacity() method of the StringBuffer class ensures that the given capacity is the minimum to the current capacity. If it is greater than the current capacity, it increases the capacity by (oldcapacity*2)+2. For example if your current capacity is 16, it will be (16*2)+2=34.

StringBufferExample7.java

```
class StringBufferExample7{
public static void main(String args[]){
StringBuffer sb=new StringBuffer();
System.out.println(sb.capacity());//default 16
sb.append("Hello");
System.out.println(sb.capacity());//now 16
sb.append("java is my favourite language");
System.out.println(sb.capacity());//now (16*2)+2=34 i.e (
sb.ensureCapacity(10);//now no change
System.out.println(sb.capacity());//now 34
sb.ensureCapacity(50);//now (34*2)+2
System.out.println(sb.capacity());//now 70
}
}
```

Output:

```
16
16
34
34
70
```

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